

Aquifer Visualization--Use of ArcView 3-D Analyst in the High Plains Regional Ground-Water Study, National Water-Quality Assessment Program

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The High Plains Regional Ground-Water Study encompasses an area of 174,000 square miles in eight States and is the largest study unit of the U.S. Geological Survey's National Water-Quality Assessment (NAWQA) Program. Geographic Information System (GIS) software is being used in the study to organize, analyze, and display geographic information for this large area. The ArcView 3-D Analyst¹ is an especially useful GIS tool for this study because the focus of the study is a three-dimensional object—the High Plains aquifer. The 3-D Analyst is being used for quality assurance of data; for example, to compare tabulated well characteristics (such as well depth, water level, and contributing aquifer) with independently derived three-dimensional aquifer-characteristics data sets. The 3-D Analyst also is being used for tasks which require visualization of aquifer morphology and characteristics; for example, to assist in the determination of the optimum placement of new monitoring wells. Finally, the 3-D Analyst is being used for data analysis; for example, to create and display water-quality-concentration surfaces that can be compared with each other and with aquifer characteristics.

1. Use of trade names is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.